



Pathology Biology Section – 2011

G28 The Correlation of Serum Stress Hormone Levels With Cause and Circumstance of Death

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The goal of this presentation is to alert forensic professionals that biological markers have the potential to provide significant information concerning the psychological state and stress levels of someone just before death.

This presentation will impact the forensic science community by providing medical examiners and the courts a mechanism to understand the degree of stress someone was going through immediately prior to death.

Interleukin 6 (IL-6) is a major regulator of immune function, and has been shown to increase due to both physical and psychological stress. Knowledge of whether or not an individual was under psychological stress prior to death may be important in many cases. In this study, levels of IL-6 and its soluble receptor (sIL6-r) with an assumed level of psychological stress prior to death was correlated. Postmortem serum samples were obtained from the New Hampshire Medical Examiner's Office and analyzed using ELISA to determine concentration of both sIL-6r and IL-6. The raw data for the soluble receptor could be placed into four groups. However, these groupings were inconsistent with stress levels based on a study of the case histories of the decedents. The data for IL-6 however correlated well with the level of psychological and emotional stress an individual was under prior to death. This study shows that measurement of postmortem serum IL-

6 can be a potentially useful technique for determination of psychological and emotional stress prior to death. **Stress Hormones, Interleukin 6, Circumstance of Death**